

CLAIMS

What is claimed is:

1. A method of applying a heat-rejection coating, comprising the steps of:

supplying a component of a gas turbine engine having an outer ceramic surface;

providing a reflective-coating mixture, wherein the reflective-coating mixture comprises a metallic pigment and an evaporable carrier;

applying the mixture to the outer ceramic surface by a method selected from the group consisting of air-assisted spraying, airless spraying, brushing, and decal transfer; and

firing the component having the reflective-coating mixture thereon to form a reflective coating on the ceramic component.
2. The method of claim 1, wherein the step of applying the reflective-coating mixture includes applying the reflective-coating mixture by air-assisted spraying.
3. The method of claim 1, wherein the step of providing the reflective-coating mixture includes providing the metallic pigment selected from the group consisting of platinum, gold, silver, rhodium, palladium, and alloys thereof.
4. The method of claim 1, wherein the step of providing the reflective-coating mixture includes providing an organic reflective-coating-mixture carrier.
5. The method of claim 1, wherein the step of applying the reflective-coating mixture includes a step of air-assisted spraying the reflective-coating mixture such that the reflective coating has an areal weight of from about 0.00275 to about 0.00475 grams per square inch of a surface to which it is applied.
6. The method of claim 1, further including an additional step, before the step of providing the reflective-coating mixture, of applying a ceramic thermal barrier coating over the component surface, and wherein the step of applying the reflective-coating mixture

includes the step of applying the reflective-coating mixture onto the ceramic barrier coating applied to the component surface.

7. The method of claim 6, wherein the step of applying the ceramic barrier coating further includes applying a coating comprising a ceramic material selected from the group consisting of lanthanum and cerium.
8. The method of claim 6, wherein the step of applying the ceramic barrier coating further includes applying a ceramic-barrier-coating mixture to the surface such that the mixture has an areal weight of from about 0.00325 to about 0.00625 grams per square inch.
9. The method of claim 6, wherein the step of applying the ceramic barrier coating further includes the step of air-assisted spraying the ceramic-barrier-coating mixture onto the component, and drying the ceramic-barrier-coating mixture.
10. The method of claim 1 wherein the provided reflective-coating mixture further comprises a noble metal encapsulator.
11. The method of claim 1 wherein the provided reflective coating mixture contains a predetermined amount of filler.
12. The method of claim 11 wherein the filler material is glass or ceramic materials.
13. The method of claim 12 wherein the filler comprises up to about 25 percent of the reflective mixture by weight.
14. The method of claim 1 wherein the step of firing the component includes firing the component from about 1,100°F to about 2,150°F.
15. The method of claim 1 wherein the step of firing the component includes firing the component at about 1,650°F.
16. A method of applying a heat-rejection coating, comprising the steps of:

supplying a component of a gas turbine engine, the component having a ceramic surface;

pre-treating the component surface to form a pre-treated component surface; thereafter

air-assisted spraying a reflective-coating mixture onto the pre-treated component surface, the reflective-coating mixture comprising a metallic pigment and a reflective-coating-mixture carrier; and

firing the component having the coating mixture thereon.

17. The method of claim 16, further including the additional step of supplying a component of a gas turbine engine, and applying a ceramic coating over a surface of the component.
18. The method of claim 17, wherein the step of applying the ceramic coating further includes the steps of air-assisted spraying a ceramic-barrier-coating mixture onto the component, and drying the ceramic-barrier-coating mixture.
19. The method of claim 16 wherein the step of spraying reflective-coating mixture further includes spraying a mixture comprising a noble metal encapsulator.
20. The method of claim 16 wherein the step of spraying the reflective coating mixture includes spraying a mixture that includes a predetermined amount of filler.
21. The method of claim 20 wherein the filler material is selected from the group consisting of glass and ceramic materials.
22. The method of claim 21 wherein the filler comprises up to about 25 percent of the reflective mixture by weight.